



a Merritt greenhouse of hydrangeas

## Merritt Hydrangea Theory: Specialization Always Best

The following address on "Hydrangeas for 1955" was delivered by Joseph S. Merritt, Jr., hydrangea grower of Dundalk, Md., at the regional meeting of the Southern Flower Growers' Association held March 2-3 in Shelby, N. C.

By JOSEPH S. MERRITT, Jr.

**H**YDRANGEAS are native to Japan and China. They were introduced in England about 1789, and are now grown over most of the world. The variety Otaska at one time was about the only variety used in the trade to any great extent, but the mixed French varieties were also used.

My father started in the greenhouse business in 1913, gradually shifting over to pot plants exclusively in 1920, and has been specializing in hydrangeas for over 30 years. We feel that through specialization in one plant we can do a much better job than if we grew a variety of flowers.

One of our earliest descriptive lists of hydrangeas shows the varieties Splendens, Marshall Foch, Lilie Moulliere, E. G. Hill, Bay Bimbenet and Otaska. We imported the new German varieties and Gertrude Glahn as early as 1929, the latter still being listed on our 1955 descriptive list. Since that time, we have added to our list such popular varieties as Hamburg, Engel's White, Jean Merritt, Strafford, Merveille and Rose Supreme. At present we are listing 22 varieties, and in addition we are currently testing several new varieties that show promise for being added to our list in the not too distant future.

Lots of important work has been done at many of the colleges on hydrangeas. We have followed with keen interest the work of Dr. Kiplinger at Ohio State on bluing, feeding and effects of light and tem-

perature with relation to dormancy. Dr. Post and his staff at Cornell contributed much with their work on temperatures with relation to bud initiation and development. Dr. Niel Stewart at the U. S. Department of Agriculture, Beltsville, Md., has proved that hydrangeas can be flowered almost the year around. We have followed very closely the work done at the University of Maryland by Drs. Conrad Link and James Shanks, particularly on bluing and feeding. Our own experimental program is tied very closely to the University of Maryland and they have been a great help to us. Your state college can be of service to you in helping you improve your growing of hydrangeas.

The first and foremost point I should like to make is for you to grow the varieties that do the best for you in your locality. However, we would recommend that you also try new varieties in addition to your old stand-bys in order to discover varieties that will be even better for you.

If you propagate your own cuttings, keep your varieties straight and use plants especially grown for stock. Cuttings taken from stock plants make better and more uniform plants than cuttings taken from the "rubbish" pruned off of flowering plants. This "rubbish" or extra wood on the plants crowds and robs the flowering wood of light and nutrients. The sooner it is removed the better.

The cuttings root best for us in a well-drained sharp sand. We use concrete beds about 6 inches deep. In the bottom we put 2 inches of slag or gravel to insure excellent drainage, and on top of that are 3 inches to 4 inches of sharp sand. These benches are shaded with removable cloth. We keep the sand fairly wet until the cuttings begin to root, then taper off on the watering. As the cuttings start to root, we shade them for shorter periods each day as rooting progresses. Do not allow a draft on the cuttings, but crack vents open as often as practicable.

Pot the rooted cuttings to small-sized pots to save greenhouse space or, after the danger of frost is passed, pot them outside to growing-sized pots. Rooted cuttings will require shade for a few weeks until they become established in the pots. Snow fence seems to be the most practicable for use out of doors.

Our soil is a light, sandy loam, and is well drained. It is ideal soil for growing hydrangeas. Several months in advance of potting, we add well-



rotted cow manure to our soil. Peat moss is replacing cow manure with most florists, but we still use manure along with peat. We also add raw bone meal and horn shavings, plus Electra, or any good organic fertilizer, to our soil.

A good soil mix should consist of 2 parts loam,  $\frac{1}{2}$  part well-rotted cow manure,  $\frac{1}{2}$  part peat. If the soil is heavy, add 1 part sand. To each wheelbarrow-load of this mix, add a 4-inch pot of raw bone meal, a 4-inch pot of horn shavings, and a 3-inch pot of Electra.

During the summer growing period weeds become a big problem. Control them by steam sterilization or methyl bromide. We use the methyl bromide gas with good results.

Some growers test their soil and feed nutrients accordingly to keep the nutrient level within the desired range for all of the elements. If this is practicable for you we would certainly recommend this method. Those of us who do not find this practical must learn to know our soil and how to fertilize it. Have the soil tested once in a while to avoid over-fertilization. Use soil tests as a trouble shooter. Test your water, too. In some localities water is the chief cause of hydrangea troubles.

In our opinion as many hydrangeas are messed up by over-feeding as from starvation. This applies to the forcing season, as well as the growing season. We would emphasize that you frequently consult with your state college and have them help you with your fertilizer problems.

Hydrangeas are heavy nitrogen feeders, and considerable nitrogen



a typical Merritt introduction of another year

fertilization is necessary to produce strong stems with dark green leaves. Phosphate and potassium generally should be in medium level. We have found that liquid feeding is the best and cheapest method of application of fertilizer. Our soil tests almost always indicate the use of 25-10-10 or 21-7-7 fertilizer.

We recommend applying small doses of fertilizer as often as practical, using a 25-10-10 at the rate of  $1\frac{1}{2}$  pounds to 100 gallons of water every 10 days, or  $\frac{1}{2}$  ounce to 2 gallons of water, during the summer growing season. Smaller doses fed more often will help avoid burning. Use some phosphate and potassium in your mix so that you always use a complete mix whenever fertilizing. Start feeding as soon as roots become established in the soil and continue until September.

Pinch varieties similar to Strafford and Merveille about June 20, and the ranker growing varieties similar to Hamburg and Gertrude Glahn about July 1. Pinch as low as possible, leaving two sets of leaves, if practicable. This should give the plants enough lateral buds to break with 2 to 4 shoots.

Summertime growing requires an adequate watering system, as hydrangeas require lots of water. The pots should be plunged to reduce drying. We use a Rotavator to prepare our soil for plunging. If your soil is well drained, plunge directly in the soil. If it is not well drained, use raised beds filled with ashes or sand in order to provide proper drainage. Hydrangeas, while they like and need lots of water, can not

stand "wet feet," and must be well drained to aerate the soil. We irrigate about 6 acres of hydrangeas every day the sun shines and our experience has indicated the most satisfactory and economical means for area watering is to use portable aluminum pipe with Rainbird sprinklers. One reason for yellowing leaves may be caused by having the pots practically sitting in water so, we emphasize again, don't let your hydrangeas have "wet feet." Watering should be tapered off during September as the plants begin to go dormant.

Don't take a chance on frost. Protect, or be prepared to protect, your hydrangeas before the danger of frost. Flower buds begin to initiate when the temperature drops below 60 degrees F. They should be initiated about Oct. 1-15. Hydrangeas must be stored in the light until the buds have properly initiated. The buds then have to develop at temperatures of 40 to 45 degrees F. for from 4 to 6 weeks, during which time dark storage is preferable. If the temperature is not held cold for a sufficiently long period of time, the plants will take longer to force.

If you purchase your forcing hydrangeas dormant from a specialist, they should be grown and shipped in a smaller-sized pot than the finished plant will be grown, in order to save shipping weight. They should be ready to start to force upon arrival. It may be best to put them back in the same sized pots until the roots start to grow before shifting into finishing pots. If you do shift them up immediately, then try



Joseph S. Merritt, Jr.





**Joseph S. Merritt, Sr., founder and active head of the business, started in Dundalk, Maryland, March 13, 1913**

a light crushing of the hard dirt ball, or soak them in water before potting. This will help get the roots off to a better start.

Hydrangeas, when completely dormant, can stand freezing, provided they are thawed slowly in the dark. If your shipment arrives frozen, do not unpack them, but store them in a dark, cool place until completely unfrozen. If this is done no damage should result from the freezing.

Some of the practices followed in forcing hydrangeas must vary from year to year. There is considerable variation between varieties in their rate of forcing. Strafford takes about 90 days at 60 degrees F. night temperature, under good conditions, while earlier varieties such as Hamburg will flower about 10 days sooner. If the storage temperature is not held sufficiently cold for the proper length of time, Strafford may take as much as 110 days. Thus, it is to your advantage to have them remain in storage longer, in order to have them force much quicker. If hydrangeas remain in storage much longer than necessary they will stretch a little in forcing. Perhaps this is the main reason Mother's Day hydrangeas seem to grow a little taller than those prepared for Easter flowering.

Hydrangeas lacking in fertilizers, particularly nitrogen, will develop more slowly at forcing. Well-fed plants will force as much as 10 days earlier than starved plants.

The rule usually followed in timing hydrangeas is to have the flower buds the size of a pea about 8 weeks

before sale. Shorten or lengthen this time by raising or lowering the night temperature from the normal of 60 degrees F. Avoid lowering the night temperature below 55 degrees F., otherwise mildew may develop. Treat mildew with sulphur on the heating pipes, or use Mildex as a control.

Hydrangeas grow best in a moderately acid soil. The presence of available aluminum in the soil makes blue flowers, while its absence makes them pink. High nitrogen fertilization counteracts the presence of aluminum, as does a soil with a pH of 6 or higher. The use of heavy phosphorus fertilizer helps keep the flower color pink by also rendering aluminum unavailable. If there is a large amount of aluminum in the soil, off-colored flowers may result, regardless of high pH, high nitrogen, and high phosphorus. Be careful in using nitrogen and phosphorus, as excess nitrogen causes soft growth and burning, while too much phosphorus leads to a premature shattering of the flowers. High potash may help produce off-color, bluish-pink flowers. Make frequent tests of soil if you are using high nitrogen and phosphorus, and consult with your state college or extension service for advice in their use. Most soil contains very little aluminum, and if this is true with your soil, we recommend using a liquid 25-10-10 at the rate of 2 pounds to 100 gallons of water every ten days, or 3 pounds per 100 gallons of water every 15 days. The first application should be made as soon as the new growth starts.

Although liquid fertilizers are much easier to apply, we can still recommend using a good organic dry fertilizer. We have used Electra with excellent results. Apply dry fertilizers with a thimble attached to a wire handle, as a much more consistent dosage can be applied. We use 1 thimbleful to a 5-inch pot every 10 days.

Stop applying fertilizers 2 weeks before sale as it will do no good and is a pure waste of effort and material.

Ohio State University recommends for best blues, under their conditions, application of aluminum 3 times in the summer and 6 times during forcing. Maryland soil does not require this summer application, and only about 3 applications are required while forcing. If you are having trouble bluing hydrangeas, try pre-bluing them during the summer. If you buy dormant hydrangeas, request your supplier to pre-blue them

for you, and then you should continue with 6 applications during the forcing season at the rate of 1 pound to 7 gallons of water. Even though we do not feed the summer application of aluminum, we do pre-blue a percentage of our hydrangeas in the hope it will be of help to our customers who have not been successful with bluing.

For best blues, avoid the use of lime, and keep the pH at about 5.5, by using 25-0-20 or 25-5-20 analysis fertilizers, applying it only as often as necessary to maintain good growth and a good green color on the leaves.

Chlorosis may be caused by a lack of iron in the soil. It shows up as a yellowing of the leaves, with darker green veins. This can be easily corrected with the new chelated iron applied at the rate of 1 ounce to 25 gallons of water. Where this is not serious it will clear up as soon as good root actions start. The new chelates are good but overdoses will cause burning, so be careful. The symptoms of iron deficiency, or chlorosis, may show up in hydrangeas due to root injury. If the roots are injured due to causes such as over-watering, over-feeding, etc., the plant can not take up the available iron, thus resulting in chlorosis. These conditions must be corrected as soon as detected so that the hydrangeas can make good root action.

Along about 2 weeks before sale, attempt to harden off your plants. Drop the temperature back to 60 degrees F., if you have been forcing hard, and open the vents a little more. Keep air on as much as possible all through the forcing period, but add a little toward the end of the forcing time. This will help them to stand up better in the retail shop, and in the customer's home.

In order to control pests and insects, avoid crowding the hydrangeas, keep them well fertilized, properly ventilated, and heated. If they are kept growing well, very little trouble will result from infestations of pests. Lindane can be used to control aphids, and diathion or parathion aerosols are excellent for red spider and aphids. From among the many fungicides we have tested, we find that Zerlate seems to be the best. Fermate is also very satisfactory, except when steaming soils after its use.

It is with sincere gratitude that I thank your committee for the opportunity afforded me to discuss hydrangeas with you, and I hope that something in this discussion will assist you in growing better hydrangeas.

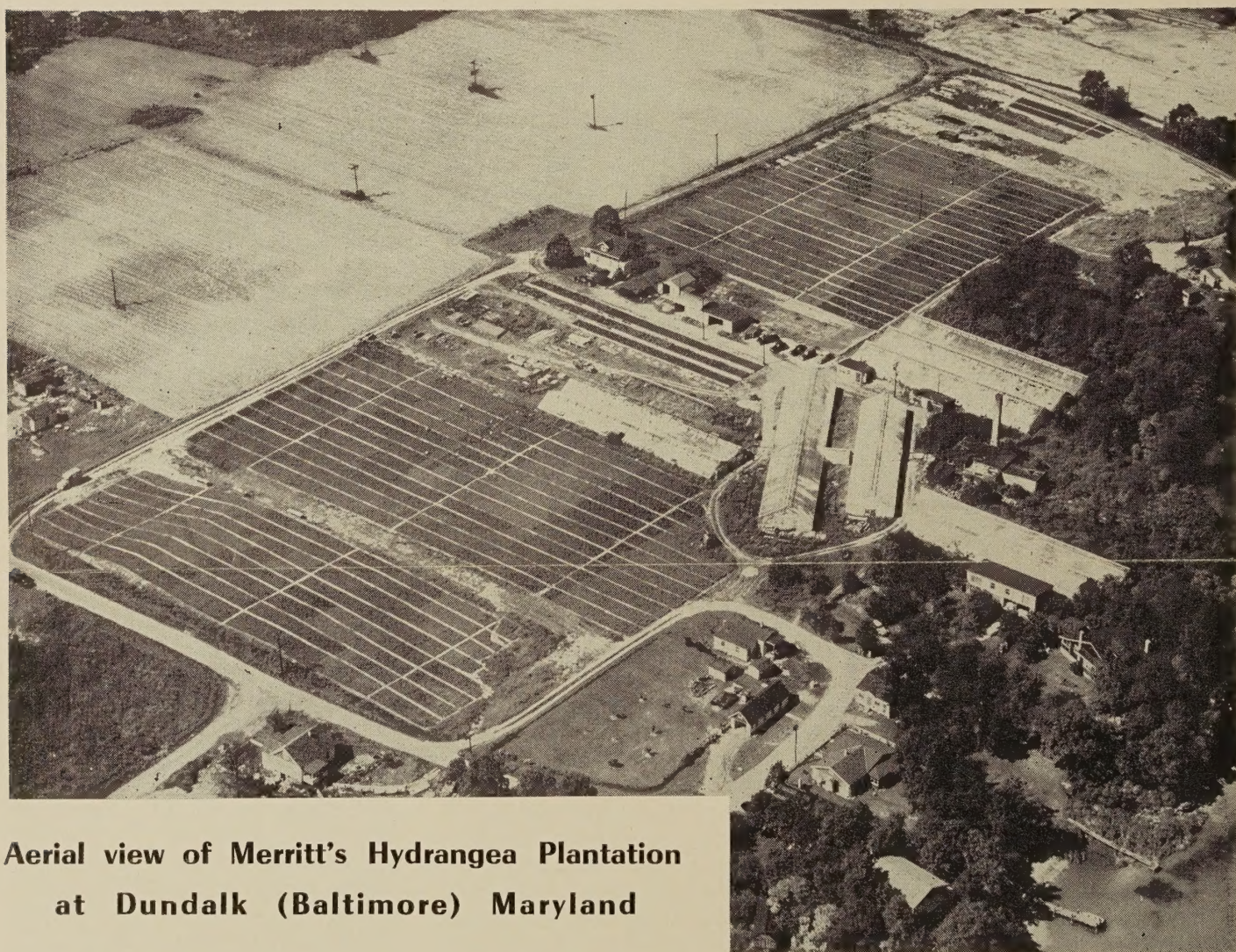


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**Aerial view of Merritt's Hydrangea Plantation  
at Dundalk (Baltimore) Maryland**